

THIRD EDITION

The Pennsylvania State College Correspondence Courses in Nature Study

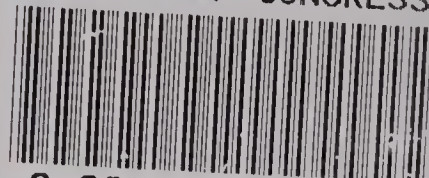
Insect Life

LESSON NO. I

THE HOUSE-FLY

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THERE is no insect that is more familiar to us, or more familiar *with* us, than the common house-fly; and yet few people know much about its life. It is well-named the *house-fly*, for there is not a house all around the world in which it cannot be found during the summer. Houses that do not have fly-screens on the windows and doors are so badly infested with flies that the inmates suffer much annoyance. Pictures must be covered with screen-cloth and choice vases must be frequently cleaned. When we seek rest in the quiet perusal of a book, the naughty flies innocently alight upon our hands or faces, moist with perspiration, and torment us with the aggravating tickle of their peculiar mouth. Let us look at the fly closely to observe its structure.

The mouth is called a *proboscis*, and has a structure most peculiar. The proboscis of the elephant is his trunk, but it is the elongation of his nose. In insects the proboscis is a modified mouth, usually as a horny tube. In the fly it is bent up under the head when not in use. When the fly settles upon a sweet substance it unbends the tongue-like proboscis, and the knob-like end spreads out into two flat muscular leaves, with which the fly laps up sweet liquids, and so effectually teases us in the heat of summer.

The eyes of the fly are no less remarkable. They are

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firmly fixed in the head; they cannot move about as do ours. But to aid the fly in seeing objects in all possible directions, we find by a minute study that the eyes which occupy such prominent positions on the head are really two great bundles of small eyes, so small that they can only be detected with a magnifying glass. It has been estimated that each of these two bundles of eyes is made up of 4,000 simple eyes, which radiate from a common center like the bristles in a paint-brush. One might think that with 8,000 eyes so much more is seen by a fly than by a man, with only two eyes. But it must be true that the eyes of a fly are exceedingly simple in structure, and therefore limited in power of vision.

Let us next observe the wings of the fly. It has only two wings. But why should we say *only* two wings? Because we see that nearly all other insects have four wings. This is true of the butterflies and beetles, the dragon-flies and bumblebees. Therefore, we should be surprised to find only two wings on the fly. All true flies have but two wings. Nature is so faithful to her "types" of animals and plants that when we find a typical part wanting, we search for a rudiment or concealed mark of the place where the missing part belonged. Then let us search the fly for the mark of the missing pair of wings. If we remove one wing we will see a light-colored membrane protruding from the body of the fly. This might be mistaken for a rudimentary wing; but it is not the part we are searching for, since it does not occupy the right place for the rear wing. Remove this membrane-like appendage (which is greatly developed in the house-fly, and is called the alulet), and we may see a delicate hair with a whitish knob on the end. This hair is attached to the body of the fly at the point where the rear wing would be, if present; another may be seen in the corresponding place on the other side of the fly. Such hairs, terminated with knobs, are present in other two-winged flies, and are more easily seen in the crane-fly (see cut), which we often see walking over our windows, looking like giant mosquitos. These hairs are called "balancers," or "poisers," or halters, because it is supposed that they aid the flies to poise "on the wing."

The house-flies are very common about barns in August and September. The reason for this is that they lay their

eggs in horse manure. A single female lays from 120 to 160 eggs. These eggs hatch out in twenty-four hours. The baby fly is a small white maggot, or larva, without feet, and lives in the manure where the egg was laid. In about a week it stops eating, gets stiff, and remains motionless for another seven days. During this period it is known as the *pupa*, or third stage of the fly's development. Then it breaks the thin shell that covers it and comes forth a fly full-grown, with legs and wings and all its parts, just as we are accustomed to see it. This is the fourth stage, or *imago*. When cold weather comes most of the flies die, but a few find a warm place in the house where they can hide and stay until warm weather comes again in spring.



Fig. 1. Crane-fly.

The best way to avoid having flies in the house is to have wire screens at every window and outside door, for flies do not originate in the house; therefore, they enter after they have become full-grown. The most successful method of trapping those which have entered is by means of the sticky flypaper sold in all stores. Many people make a "fly brush" by cutting up flour sacks into long, narrow strips, and tying them to broomsticks, and at frequent intervals drive the flies out of an open door. The tops of asparagus are suspended in rooms, because flies delight to gather upon these plants, but the relief by this method is exceedingly slight.

Several plants are spoken of as "fly catchers," but their capacity for catching flies is very limited. The Venus fly trap, and several wild pinks, known as "catchflies," are some of them.

The house-fly cannot bite, as many people suppose. There is another fly which does bite that closely resembles the house-fly. It occurs occasionally in the house, and has a mouth, or proboscis, formed for piercing. When you find one of this kind, examine it closely. It is called the stable-fly, because it is abundant about the barns, but this is not the horse-fly, as some children might assume.

There is another fly in our houses, in small numbers, often thought to be the house-fly, but is not. It is best recognized in the fall, when a fungous disease attacks it, causing it to die on walls and window panes, with the abdomen much swollen and white. It should be remembered, however, that the house-fly is also attacked by this fungus, and many are killed by it.

There is another fly, much smaller than the house-fly, which many people think is a young fly. We must remember that flies do not grow in size; they are as large when they come from the maggot as they are when they die, and the small fly is therefore a different insect, that may be called the *small house-fly*.

There are so many kinds of flies that it is very difficult to identify some of them, for they resemble each other closely. We can study some of the other kinds at another time, such as the blow-flies, bot-flies, and horse-flies. It is believed that there are in America about 10,000 different kinds of two-winged flies.

Lessons on the following subjects will be sent to teachers as they are prepared to receive them:—

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| 2. The Honey-bee. | 6. Green Plant Lice. |
| 3. The Cabbage Butterfly. | 7. The Potato Beetle. |
| 4. The Clothes Moth. | 8. The Squash Bug. |
| 5. The Spider. | 9. The Tomato Worm. |

SUGGESTIONS TO THE TEACHER

By all means have some flies under tumblers; have also some sweetened water to feed them.

If other flies than the house-fly can be displayed, it is all the better, but direct special attention to the subject only.

Watch the movement of the proboscis as the fly laps its food.

Watch the order of lifting the feet as the fly travels.

Point out the exact color of each part of the fly.

State clearly to the children that flies lay eggs in decaying matter and that white worms (maggots) hatch from them; then later, winged flies are developed.